REMARKS

Claims 1-7 and 9-36 are pending in the application.

Claims 1-36 stand rejected.

Claims 1, 27, 30, 33, and 36 have been amended. Support for the amendments to claims 27, 30, 33, and 36 can be found, at least, in paragraphs 63 and 70 of the specification.

Claim 8 has been cancelled.

Claim Objections

The Examiner has objected to claim 1 because of an antecedent basis error. Claim 1 has been amended to provide correct antecedent basis. Accordingly, Applicants believe that this objection is moot.

Rejection of Claims under 35 U.S.C. § 102

Claims 1 and 3-36 stand rejected under 35 U.S.C. § 102(e) as being anticipated by Kashima et al, U.S. Patent No. 5,485,598 ("Kashima"). With respect to claim 36, the cited art fails to anticipate, teach, or suggest "cloning information stored in a first unit of storage into a second unit of storage, in response to detecting that said information stored in said first unit of storage is to be modified."

The Examiner equates the data cache taught in Kashima with the second unit of storage in claim 36. Similarly, the Examiner equates the old data cache of Kashima with the second unit of storage of claim 36. Advisory Action, p. 2. The cited art teaches a system in which data is copied into the old data cache (e.g., old data cache 15 of FIG. 4 of Kashima) when a renew

operation is being performed. During the renew operation, the data is transferred from disk cache 13 to the disk array as well as to the user buffer 14. When the data is transferred to the disk array, the data is also stored in the old data cache 15. Kashima, col. 4, lines 1-21. The data in the user buffer 14 (which was originally transferred from disk cache 13) is then copied to disk cache 13 to renew the data on the disk cache. Kashima, col. 4, lines 22-26.

Thus, in Kashima, data is stored in the old data cache as part of a renew operation. This operation refreshes, but does not modify, the data in the disk cache. None of the other cited portions of Kashima teach or suggest copying or cloning information from the disk cache to the old data cache in response to detecting that the information in the disk cache is to be modified. Accordingly, the cited portions of Kashima neither teach nor suggest cloning information stored in a first unit of storage into a second unit of storage in response to detecting that information stored in the first unit of storage is to be modified, as recited in claim 36.

Additionally, no need for such behavior is identified in the cited portions of Kashima. For example, the write command described in FIG. 6 of Kashima is not a command that modifies the information stored in the disk cache. Instead, this command writes the information stored in the disk cache to the disk array. Thus, this command does not modify the information stored in the disk cache. Given that the scenarios described in the cited portions of Kashima do not even include actions that modify the information in the disk cache (instead, the cited portions of Kashima only describe renewal of that information), there is clearly no suggestion to perform any particular action involving the old data cache in response to such a modification.

Further with respect to claim 36, the cited art fails to anticipate, teach, or suggest "maintaining a first cache and a second cache, wherein said maintaining is performed by one of

an upper-level system and a lower-level system" and "providing access to said second cache by the other of said upper-level system and said lower-level system."

The Examiner equates the upper-level system of claim 36 with the main memory system of Kashima, while also equating the lower-level system of claim 36 with the disk array of Kashima. Advisory Action, p. 2. The cited art teaches a system in which the old data cache can be part of the main memory system (e.g., as shown in FIGs. 8 and 11 of Kashima) or part of a disk array (e.g., as shown in FIGs. 4 and 14 of Kashima). However, the description of these configurations does not teach or suggest a scenario in which either the main memory system maintains the old data cache, while access to the old data cache is provided to the disk array, or the disk array maintains the old data cache, while access to the old data cache is provided to the main memory system.

In the description of FIG. 6, which is a flowchart describing how the system of FIG. 4 (in which the disk array includes the old data cache) operates, Kashima describes how the disk array writes information into the old data cache and reads information from the old data cache. In this example, the main memory system does not have access to the old data cache. Kashima, col. 4, lines 13-18 and 33-39.

Similarly, in the description of FIG. 10, which is a flowchart describing how the system of FIG. 8 (in which the main memory system includes the old data cache) operates, Kashima describes how the OS copies information into the old data cache and transfers information from the old data cache to the disk array for use in the generation of the new checksum (CK) data. Kashima, col. 5, lines 21-25 and 32-37. In this example, the disk array must rely on the OS to transfer the data from the old data cache to the disk array. Applicants note that simply receiving data that might have, at one point, been stored in a cache does not teach that the recipient has

"access" to the cache. Access implies that the device having access is able to read from and/or write to the cache (as opposed to simply receiving data has been read from and/or written to the cache). Thus, in the example described with respect to FIG. 10 of Kashima, only the OS has access to the old data cache. The disk array, while able to receive data that was stored in the old data cache, does not have access to old data cache itself. Accordingly, for at least the foregoing reasons, the cited portions of Kashima fail to teach or suggest "maintaining a first cache and a second cache, wherein said maintaining is performed by one of an upper-level system and a lower-level system" and "providing access to said second cache by the other of said upper-level system and said lower-level system," as recited in claim 36.

Claims 1, 3-7, and 9-13 are patentable over the cited art for at least the foregoing reasons provided above with respect to claim 36. Claims 14-36 are patentable over the cited art for similar reasons.

Rejection of Claims under 35 U.S.C. § 103

Claim 2 stands rejected under 35 U.S.C. § 103(a) as being unpatentable over Kashima. Claim 2 is patentable over the cited art for at least the foregoing reasons presented above with respect to claim 36.

CONCLUSION

In view of the amendments and remarks set forth herein, the application is believed to be in condition for allowance and a notice to that effect is solicited. Nonetheless, should any issues remain that might be subject to resolution through a telephone interview, the Examiner is invited to telephone the undersigned at 512-439-5087.

Respectfully submitted,

I hereby certify that this correspondence is being deposited with the United States Postal Service as First Class Mail in an envelope addressed to: Mail Stop RCE, Commissioner for Patents, P.O. Box 1450, Alexandria, VA 22313-1450, on **June 15, 2006**.

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